

REMARKS

Claims 36-69, 71, 72, 80-84, 87, and 88 are pending in this application. Claims 36, 52-54, and 87-88 are independent claims. Claims 36, 41, 52-53, 71-72, 80-84, 87-88 have been amended, and claims 70, 73-79, 85 and 86 have been canceled, by this Amendment.

The Office Action dated October March 28, 2008 provisionally rejected claims 36, 52, 53, 54, 70, 86, 87 and 88 for nonstatutory obviousness-type double patenting over claims 4 and 24 of copending U.S. Patent Application No. 09/833,869. The Office Action objected to claims 36, 41, 52, 54, 75, 87 and 88 because of formalities, and rejected claims 41, 52, 53 and 70-88 as being indefinite pursuant to 35 USC 112, second paragraph.

The Office Action rejected claim 87 under 35 USC 101 as being directed to nonstatutory matter. The Office Action rejected claims 36, 37, 46, 47, 49, 50, 52-55, 67, 68, 70, 71, 83, 84, and 86-88 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,304,556 issued to Haas. The Office Action also rejected claims 38-40, 48, 56-58, 66, 72-74, and 82 as being rendered obvious under 103(a) in view of U.S. Patent 6,304,556 to Haas in view of U.S. Patent 6,751,455 to Acampora and rejected claims 41-45, 51, 59-65, 69, 75-81, and 85 as being rendered obvious under 103(a) in view of U.S. Patent 6,304,556 to Haas in view of U.S. Patent 6,751,455 to Acampora and in further view of U.S. Patent 6,980,537 to Liu.

Double Patenting

The grounds for the provisional nonstatutory double patenting rejection is set forth in parts 3 and 4 on pages 2 through 4 of the March 28, 2008 Office Action. Applicants traverse the rejection because claims 36, 52, 54, 70, 87 and 88 of this application are patentably distinct from claim 4 of copending application No. 09/833,868, and claims 53 and 86 of this application are patentably distinct from claim 24 of copending application No. 09/833,868. Nevertheless, applicants are filing a terminal disclaimer pursuant to 37 CFR 1.321 (c) contemporaneously with this Amendment to render the rejection moot.

Claim Objections

The grounds for the objections to claims 36, 41, 52, 54, 70, 75, and 87-88; are set forth

on page 5 of the Office Action. The suggestions made by the Examiner have been made to claims 36, 41, 52, 54, 70, 75, and 87-88. It is respectfully submitted that the claim objections have been satisfactorily addressed and overcome by this Amendment.

Claim Rejections - 35 USC § 112

The grounds for the rejection of claims 41, 52, 53, and 70-88 as indefinite pursuant to 35 USC § 112, second paragraph, are set forth on pages 6 through 8 of the March 28, 2008 Office Action. Claims 41, 52, 53, 71, 72, 80-84, 87 and 88 have been amended to overcome the Examiner's rejections. It is respectfully submitted that the claim rejections have been satisfactorily addressed and overcome by this Amendment. Claims 70, 73-79, 85-86 have been canceled.

Claim Rejections - 35 USC § 101

The grounds for rejection of claim 87 pursuant to 35 USC § 101 are set forth on page 8 of the Office Action. Specifically, Claim 87 is rejected because, although the claim is admittedly drawn towards a processor, it continues with limitations which modify the communications unit and the communications systems in which the communications unit operates. Claim 87 has been amended to overcome the Examiner's rejection by removing the limitations which modify the communications unit and the communications systems in which the communications unit operates. It is respectfully submitted that the claim rejection has been satisfactorily addressed and overcome by this Amendment.

Claim Rejections - 35 USC 102(e)

The grounds for the rejection of claims 36, 37, 46, 47, 49, 50, 52-55, 67, 68, 70, 71, 83, 84 and 86-88 pursuant to 35 USC 102(e) are set forth on pages 9 through 12 of the Office Action. Specifically, the claims are rejected as being anticipated by the embodiment shown in Fig. 3 and described at col. 3, lines 37-65, of U.S. Patent No. 6,304,556 issued to Haas (this embodiment hereinafter referred to simply as "Haas"). Applicants respectfully traverse the rejection at least because Haas does not include each and every one of the combination of features recited in the rejected claims.

For example, independent claim 36 recites a second mesh network tier comprising "a plurality of second mesh network tier subscriber units and a second mesh network tier sink node unit configured to wirelessly communicate with the second mesh network tier subscriber units..." The other independent claims recite substantially the same feature.

Haas includes two network tiers - the first network tier being a series of networks 22, 26, 30, and 28 and the second network being marked with reference numeral 32 in Fig. 3. Each of the tier 1 networks has a respective cluster head CH1, CH2, CH3 or CH4. Each cluster head CH can operate as a sink node for each of the nodes in its respectively corresponding tier 1 network and can communicate with the other cluster heads using a connection in the tier 2 network.

However, there is no indication that the tier 2 network 32 in Haas comprises a plurality of second mesh network tier subscriber units, much less that there is a second mesh network tier sink node configured to communicate with such second mesh network tier subscriber units. The cited reference does not state that there is even a possibility of having a subscriber unit on a tier 2 network. The tier 2 network in Haas is described as purely operating as a routing network. The description is as follows:

"To explain the approach of the subject invention, the routing in a multtier ad-hoc network will be described with reference to the example shown in FIG. 3. A two-tier ad-hoc network 20 is illustrated that is comprised of a plurality of network nodes 22 that are partitioned into four clusters 24, 26, 28 and 30, each of which forms a corresponding tier-1 network. In each cluster, one node labeled CH1, CH2, CH3 and CH4, respectively, is chosen to be a cluster head. The cluster heads thus form a tier-2 network 32. Note that the tier-1 and the tier-2 networks are separate. Routing between nodes that belong to the same tier-1 network is either peer-to-peer or through the cluster head. Each cluster head "knows" the identities of all the nodes in its cluster and the routes between the cluster head and the cluster node. A route between two nodes that belong to two different tier-1 networks is determined by the cluster head of the source node through querying the other cluster heads about the location of the destination. This querying is performed within the tier-2 network. The routing is then as follows: source node to its cluster head, source cluster head to destination cluster head, destination cluster head to the destination node. The first and the third segments are within tier-1 networks. The second segment is within the tier-2 network. The advantage of a multi-tier ad-hoc network is in the relatively efficient way that the routes are determined by the cluster heads. The disadvantage of the multi-tier approach is in increased congestion at the cluster head nodes, reduced system reliability due to a single point of failure, and in sub-optimality of routing paths. (underlining added)(col. 8, lines 37-65)

As indicated by the underlined language, the network nodes 22 are described only as being in one of the clusters of the first tier network in Haas. The second tier network is described only as acting as a routing network between the cluster heads, supporting amongst

connections with subscriber units in the first network tier that are routed through the second tier. The rejection refers to the notation "cluster head" in the right hand side of Fig. 3 as corresponding to CH3, and the rejection implies that such notation indicates that CH3 is the cluster head of second tier network. However, such implication is not correct and is, in any event, unsupported by the cited reference. There is no description in the cited reference that CH3 is a cluster head of the second tier network. It is merely an indication that the second tier network includes only the cluster head of each cluster in the first tier network.

Claim Rejections - 35 USC § 103

The grounds for the obviousness rejection of claims 38-40, 48, 56, 58, 66, 72-74 and 82 under 35 USC 103(a) is set forth in part 15 on pages 12-15 of the Office Action. Specifically, the claims are rejected as being obvious over Haas in view of U.S. Patent 6,751,455 to Acampora (hereinafter referred to as "the '455 patent"). Applicants respectfully traverse the rejection on the grounds that it fails to establish a *prima facie* case that the applied references suggest a combination that includes each and every one of the combination of features recited in the rejected claims.

For example, the rejection states that one would have modified Haas to use a different frequency in each tier and the "motivation for doing so would have been to allow communications at the two tiers to remain separate and not interfere with each other" and to use a plurality of sink nodes in the first tier and the "motivation for doing so would have been [to] make the network more robust in the event of a failure of a sink node as well as to reduce the capacity requirements placed upon a single sink node." However, the allegation of motivation to modify Haas is conclusory; there is no support or rationale cited in the rejection for the purported motivation. Applicants respectfully submit that the rejection should be withdrawn at least for this reason. If the rejection is not withdrawn in view of this argument, then applicants request that it be indicated why there is believed to be motivation for the proposed modification of Haas.

The grounds for the obviousness rejection of claims 41-45, 51, 59-65, 69, 75-81, and 85 under 103(a) is set forth in part 16 on pages 15-18 of the Office Action. Specifically, the claims are rejected as being obvious over Haas in view of the '455 patent and in further view of U.S. Patent 6,980,537 to Liu (hereinafter referred to as "the '537 patent"). Applicants respectfully

traverse the rejection on the grounds that the '537 patent is not prior art with respect to this application.

As acknowledged in the Office Action, certified copies of the priority documents have been received in this National Stage application. In addition to PCT Application No. PCT/IB00/01434 filed on September 27, 2000, this application claims priority to United Kingdom Application No. 9923070.8 filed on September 29, 1999. The '537 patent was filed on November 13, 2000, which is after the priority date of this application and therefore the '537 patent is not prior art relative to this application. The '537 patent does claim a priority date of November 12, 1999, but this priority date is also after the priority date of this application. Furthermore, the '537 patent claims priority to two provisional applications rather than to a UK utility application. Keeping in mind that a reference must be considered as a whole in an obviousness rejection based on a combination of references, applicants respectfully submit that the two provisional applications do not provide support for the '537 patent at least insofar as they do not make the same teachings as the '537 patent when considered as a whole. Applicants respectfully submit that the rejection should be withdrawn at least for this reason. If the rejection is not withdrawn in view of this argument, then applicants request that it be indicated why the '537 patent is believed to be prior art, including (if applicable) how the two provisional applications are believed to make the same teachings as the '537 patent.

Respectfully submitted,



Robert M. Bauer, Reg. No. 34,487
MacDONALD, ILLIG, JONES & BRITTON LLP
100 State Street, Suite 700
Erie, Pennsylvania 16507-1459
Tel.: (814) 870-7754

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